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1. Scientific Research Institute of Plague Control and Municipal Sanitary Epidemiological Station, Rostov on Don, U.S.S.R.
(HEMAGGLUTINATION INHIBITION TESTS) (INFLUENZA VIRUSES)

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1. Institut goryuchikh iskopayemykh AN SSSR i Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
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BATUSOV, S.V., kandidat tekhnicheskikh nauk, dotsent.

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1. Kafedra svetotekhniki.
(Signals and signaling) (Inland navigation)

BATUSOV, S.V., kandidat tekhnicheskikh nauk.

Light signals on inland waterways. Svetotekhnika 2 no.3:11-13 My '56. (MIRA 9:8)

1. Moskovskiy energeticheskiy institut.
(Beacons)

ALEKSANDROV, A.G., dots; ARONOVICH, I.S., inzh.; BABIKOV, M.A., doktor tekhn.nauk; BATUSOV, S.V., kand.tekhn.nauk; BEL'KIND, L.D., doktor tekhn.nauk; VENIKOV, V.A., doktor tekhn.nauk; VESELOVSKIY, O.N., kand.tekhn.nauk; GOLOVAN, A.T., doktor tekhn.nauk; GOLUBTSOVA, V.A., doktor tekhn.nauk; GREYNER, L.K., inzh.; GRUDINSKIY, P.G., prof.; GUSEV, S.A., inzh.; DMOKHOVSKAYA, L.F., kand.tekhn.nauk; DROZDOV, N.G., doktor tekhn.nauk; IVANOV, A.P., doktor tekhn.nauk [deceased]; KAGANOV, I.L., doktor tekhn.nauk; KERBER, L.L., inzh.; KOCHENOVA, A.I., kand.tekhn.nauk.; LARIONOV, A.N.; MINOV, D.K., doktor tekhn.nauk; NETUSHIL, A.V., doktor tekhn.nauk; NIKULIN, N.V., kand.tekhn.nauk; NILENDER, R.A., prof.; PANTYUSHIN, V.S., prof.; PASYNKOV, V.V., doktor tekhn.nauk; PETROV, G.N., doktor tekhn.nauk; POLIVANOV, K.M., doktor tekhn.nauk; PRIVEZENTSEV, V.A., doktor tekhn.nauk; RADUNSKIY, L.D., inzh.; RENNE, V.T., doktor tekhn.nauk; SVENCHANSKIY, A.D., doktor tekhn.nauk; SOLOV'YEV, I.I., doktor tekhn.nauk; STUPEL' F.A. kand.tekhn.nauk; TALITSKIY, A.V., prof.; TEMNIKOV, F.Ye., kand.tekhn. nauk; FEDOROV, L.I., inzh.; FEDOSEYEV, A.M., doktor tekhn.nauk; KHOLYAVSKIY, G.B., inzh.; CHECHET, Yu.S., doktor tekhn.nauk; SHNEYBERG, Ya.A., kand.tekhn.nauk; SHUMILOVSKIY, N.N., doktor tekhn.nauk; ANTIK, I.B., red.; MEDVEDEV, L.Ya., tekhn.red.

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(Continued on next card)

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1. Moscow. Moskovskiy energeticheskiy institut. 2. Chlen-korrespondent AN SSSR (for Larionov)
(Electric engineering)

BATUSOV, S., inzh.; ZABEREZHNYY, D., inzh.

Efficient lighting systems for floating beacons. Rech. transp.
2o no. 2:32-34 F '61. (MIRA 14:2)
(Beacons)

S/196/61/000/009/014/052
E194/E155

AUTHORS: Batusov, S.V., and Zaberezhnyy, D.T.

TITLE: The design of an optical reflecting system for all-round signal lamps

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.9, 1961, 13, abstract 9V 109. (Svetotekhnika, 7 no.2, 1961, 18-22)

TEXT: On floating buoys in rivers it is more rational to use signal lamps consisting of a reflecting system with a high-voltage discharge tube rather than the incandescent lamps with cylindrical lens and light filter which are used at present. The calculations are given for a parabolic-circular reflector with a circular focal line which coincides with the annular tube. The optical system, which is of circular symmetry, concentrates the light flux of the lamp only in a vertical plane. The light distribution curve of the optical system gives identical light output in all directions in the horizontal plane and in the vertical only in the range 15 - 20°, which fully meets the

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SOV/20-128-3-16/58

21(8)

AUTHORS: Batusov, Yu. A., Bogachev, N. P., Sidorov, V. M., Chulli, I.

TITLE: Formation of Mesons by π^+-Mesons With 280 Mev Energy on Nuclei in a Photoemulsion

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 3, pp 491-494 (USSR)

ABSTRACT: When a positive pion collides with a nucleon in a compound nucleus, two charged mesons may be formed by the following reactions: $\pi^+ + p \rightarrow \pi^+ + \pi^+ + n$ (I), $\pi^+ + n \rightarrow \pi^+ + \pi^- + p$ (II). The authors investigated reactions (I) and (II) on the interaction of fast positive pions with nuclei in the photoemulsion. An emulsion chamber composed of ten layers of the emulsion NIKFI of the kind R (thickness 400 μ, diameter 80 mm) was irradiated in a beam of positive pions with 307 Mev energy in the synchrocyclotron of the Laboratoriya yadernykh problem (Laboratory for Nuclear Problems) of the Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research). Considering the slowing-down of mesons in the emulsion, the results of measurement were referred to an energy of (280±20)Mev

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SOV/20-128-3-16/58

Formation of Mesons by π^+-Mesons With 280 Mev Energy on Nuclei in a Photoemulsion

of primary mesons. 13 (+ 4 probable) cases with two secondary mesons were recorded in 300 stars which had been found in the emulsion layers. In about 40% of the cases recorded only the track of a secondary particle could be found. When positive 280-Mev pions collide with nuclei of the photoemulsion, these pions in the nucleus are absorbed as often as negative pions. Disintegrations totalled 92 with slowed-down negative pions, and 106 with positive ones. Further investigation disclosed that 39 of these 198 disintegrations contained two secondary charged mesons. A diagram illustrates the energy distribution of mesons for the cases in which two secondary mesons were emitted. 7 of 112 investigated mesons possessed an energy of more than 60 Mev. The spectrum attained its maximum within the range 30-40 Mev. The major part of secondary mesons have an energy of less than 60 Mev, and the mean energy of the latter amounts to 30 Mev. The second diagram shows the spectrum of stopped negative pions. It resembles that mentioned above, yet it is distinctly shifted toward lower energies. The mean energy of negative pions amounts to 16 Mev.

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SOV/20-128-3-16/58

Formation of Mesons by π^+-Mesons With 280 Mev Energy on Nuclei in a Photoemulsion

The difference in the mean energies of positive and negative pions (~ 14 Mev) is due to the effect of the Coulomb field of the nucleus. The angular distribution of pions within the center-of-mass system is not isotropic, and attains a wide maximum at angles of ~ 180°. A table shows the angular distribution of mesons for cases with two mesons. A distinct correlation in the direction of emission of the two secondary mesons is noticed here. The cross sections of meson formation during the collision of positive pions with nuclei in the photoemulsion were determined by comparing the number of formation processes with the number of stars produced by mesons within the same emulsion volume. The medium range of positive pions for star formation in the emulsion amounts to (32.4 ± 2.3) cm. The cross sections of the formation of charged mesons in the processes $\pi^- + \text{nucleus} \rightarrow \pi^-$ and $\pi^- + \text{nucleus} \rightarrow \pi^+$ are of the same order of magnitude. In most cases, the resultant mesons are absorbed in the same nucleus. For the reactions $\pi^+ + n \rightarrow \pi^+ + \pi^- + p$ and $\pi^- + p \rightarrow \pi^- + \pi^+ + n$, the cross sections (0.3 ± 0.2) and

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Formation of Mesons by π^+-Mesons With 280 Mev Energy on Nuclei in a Photoemulsion SOV/20-128-3-16/58

0.1 mb were obtained. The authors thank Professor V. P. Dzhelepov for his interest in this investigation. There are 4 figures, 2 tables, and 10 references, 6 of which are Soviet.

PRESENTED: May 27, 1959, by L. A. Artsimovich, Academician

SUBMITTED: May 11, 1959

Card 4/4

BATUSOV, Yu.A.; BUYNATOV, S.A.; SIDOROV, V.M.; YARBA, V.A.

Determining the cross section of recharge of a π^+-meson on a π-meson from the analysis of the reaction $\pi^- + p \rightarrow \pi^- + \pi + n$ at an energy of 290 Mev. Zhur. eksp. i teor. fiz. 39 no.2:506-509 Ag '60. (MIRA 13:9)

1. Ob"yedinennyy institut yadernykh issledovaniy.
(Mesons)

88467

S/056/60/039/006/060/063
B006/B063

24.6900

AUTHORS: Batusov, Yu. A., Bunyatov, S. A., Sidorov, V. M., Yarba, V.A.

TITLE: Production of Charged Mesons by 245-Mev π^- Mesons on Hydrogen

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 6(12), pp. 1850-1852

TEXT: This "Letter to the Editor" presents preliminary results of a study of the reaction $\pi^- + p \rightarrow \pi^+ + \pi^- + n$, in which the initial meson had an energy of 245±15 Mev. The experiments were performed in the synchrocyclotron of the Laboratoriya yadernykh problem OIYaI (Laboratory for Nuclear Problems of the Joint Institute of Nuclear Research). A total of 32 events have been recorded. The cross section for the reaction was found to be 0.10 ± 0.04 mb. The meson production near the threshold can be explained according to A. A. Ansel'm and V. N. Gribov who have shown that the energy dependence of the cross section depends on particle interaction in the final state and is determined by the amplitudes of the charge-exchange reactions $\pi^+ + \pi^- \rightarrow \pi^0 + \pi^0$ and $\pi^+ + n \rightarrow \pi^0 + p$. The angular and

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Production of Charged Mesons by 245-Mev π^- Mesons on Hydrogen

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momentum distributions of the secondary particles in the center-of-mass system, measured at 245 Mev (solid lines), are in Fig. 2 compared with data from Ref. 8 (E_π = 290 Mev)(broken lines). It is noted that the results obtained at 245 Mev do not esentially differ from those obtained at 290 Mev. Numerical results:

	245 Mev	290 Mev
$\bar{\theta}^*_{\pi^+\pi^-}$, deg	103 ± 7	116.7 ± 2.4
$\bar{\theta}^*_{\pi^+n}$, deg	125 ± 7	113.4 ± 2.5
$\bar{\theta}^*_{\pi^-n}$, deg	131 ± 5	129.3 ± 2.4

V. P. Dzhelepov and L. I. Lapidus are thanked for their interest in the work. There are 2 figures and 8 references: 4 Soviet and 4 US.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

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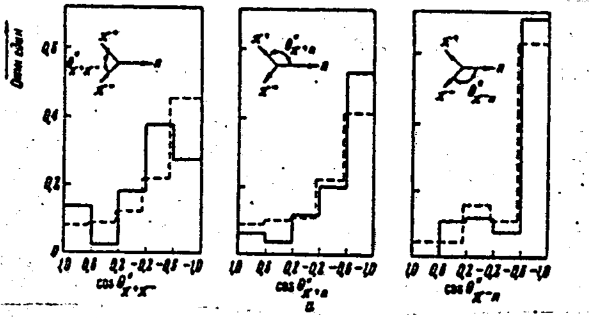
B006/B063

Production of Charged Mesons by 245-Mev π^- Mesons on Hydrogen

SUBMITTED: October 1, 1960



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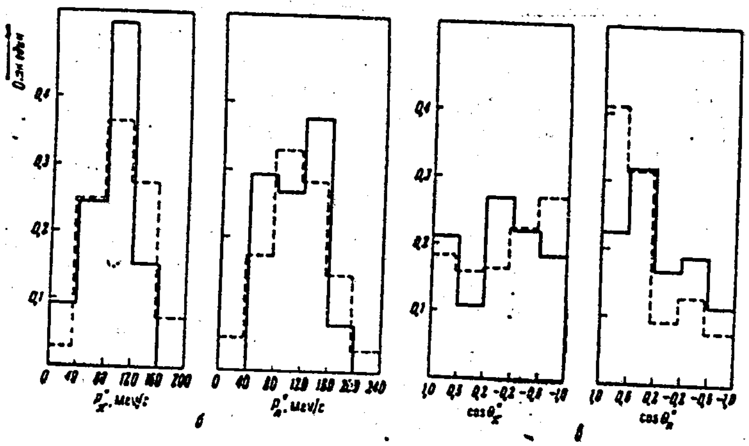
B006/B063



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81716
S/020/60/133/01/14/070
B014/B011

AUTHORS: Batusov, Yu. A., Bogachev, N. P., Bunyatov, S. A., Sidorov, V. M., Yarba, V. A.

TITLE: Formations of Charged Mesons by π^--Mesons With an Energy of 290 Mev on Hydrogen 19

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 1, pp. 52-55

TEXT: The first results obtained from the investigation under review were submitted by B. M. Pontekorvo in July, 1959, at the Conference for the Physics of High-energy Particles held in Kiyev. The authors of the present paper wanted to study the conditions and the energy characteristic of secondary particles in the reaction $\pi^- + p \rightarrow \pi^- + \pi^+ + n$ at an energy of 290 Mev of the primary π^--mesons. The angular and momentum distribution obtained are compared with the statistical theory by Fermi and the isobaric model by Lindenbaum and Sternheimer. The meson production was conducted in pelliole stacks, which were exposed to a π^--meson beam from the synchrocyclotron of the Laboratoriya yadernykh problem Ob"yedinennogo instituta yadernykh issledovaniy (Laboratory of Nuclear Problems of the
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81716

Formations of Charged Mesons by π^--Mesons With an Energy of 290 Mev on Hydrogen

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Joint Institute of Nuclear Research). 1920 interactions of primary mesons were recorded in the photoemulsion, and in the further analysis only such cases were selected as exhibited only two mesons among the secondary charged particles. 135 interactions satisfied these conditions and in them, the authors measured the energy of the secondary mesons and the angle of their emission. An estimation of the reaction cross section, in which reference was made to a paper by K. S. Bogomolov and M. F. Rodicheva, yielded a value of (0.61 ± 0.13) millibarns. Fig. 1 is a graph depicting the momentum distribution of secondary particles in the studied reaction for π-mesons and neutrons. In these diagrams, measurement results are compared with the curves calculated after the statistical theory and the isobaric model. Theory and experiment agree within the limit of error. The diagrams of Fig. 2 show the experimentally determined angular distributions for π^+-mesons, π^--mesons, and neutrons. Here, the non-isotropic and asymmetrical angular distribution of the reaction products does not agree with the premises of the statistical theory. It follows from the

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Formations of Charged Mesons by π^--Mesons With an Energy of 290 Mev on Hydrogen

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analysis of experimental data that the momentum distribution, in the summation over all angles in the center-of-mass system, contradicts neither the statistical theory nor the isobaric model. Fig. 3 is a graph depicting the angular distributions among the momenta of secondary particles in the center-of-mass system from 100 experiments. Brief mention is made of the explanation of the asymmetry of the angular distribution of products, which contradicts the statistical theory by Fermi, with the aid of the isobaric model by Sternheimer and Lindenbaum. The authors thank Professor V. P. Dzhelepov for his aid in carrying out the operations, S. M. Bilen'kom, L. I. Lapidus, and R. M. Ryndin for discussing a number of problems. There are 3 figures and 18 references: 8 Soviet and 10 American.

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ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

PRESENTED: March 14, 1960, by L. A. Artsimovich, Academician

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Formations of Charged Mesons by x^--Mesons With an Energy of 290 Mev on Hydrogen

81716
S/020/60/133/01/14/070
B014/B011

SUBMITTED: March 5, 1960

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S/056/61/040/002/011/047
B102/B202

AUTHORS: Batusov, Yu. A., Bunyatov, S. A., Sidorov, V. M., Yarba, V. A.

TITLE: Production of charged mesons by 290-Mev π^- mesons in hydrogen

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 2, 1961, 460-463

TEXT: The present paper is the continuation of a previous paper (Ref. 1: DAN SSSR, 133, 52, 1960), in which the authors studied the momentum and angular distributions of secondary particles of the reaction $\pi^-+p\ \pi^++\pi^-+n$. In the present paper, the authors present the results of an analysis of 250 events of this reaction at a meson energy of (290±15)Mev. The studies were made at the synchrocyclotron of the laboratoriya yadernykh problem OIYaI (Laboratory of Nuclear Problems of the OIYaI) by means of a photo-emulsion chamber. The measured momentum and angular distributions were compared with those obtained by the statistical Fermi theory and the model of Lindenbaum - Sternheimer. Calculations were made by the method of "random stars" and an

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electronic computer. The mean accuracy of the theoretical histograms is approximately 5%. Results are illustrated in figures. A comparison of the diagrams shows that no quantitative agreement with the experiment can be obtained although the statistical theory and the isobaric model correctly reproduce the characteristic features of the spectra. E. g., the maximum of the neutron spectrum (Fig. 1) was found to be shifted toward smaller momenta. The angular distribution (angle between secondary pions - Fig. 2) indicates that the mesons probably depart at larger angles than those found theoretically. The mean angles of emission are the following:

	experiment	statistical theory	isobaric model
$\bar{\theta}^{*}_{\pi^+\pi^-}$	116.7±2.4	102.2	98.1
$\bar{\theta}^{*}_{\pi^+n}$	113.4±2.5	128.6	123.9
$\bar{\varepsilon}^{*}_{\pi^-n}$	129.3±2.4	129.4	141.0

Fig. 3 shows the angular distribution of secondary particles with respect to the direction of the primary meson; these experimental distributions can be

Production of ...

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explained neither by the statistical theory nor by the isobaric model. It has been shown earlier (ZhETF, 39, 506, 1960) that the distribution with respect to relative momenta of secondary particles is in agreement with the theoretical distribution calculated by A. A. Ansel'm and V. N. Gribov. In this connection, the authors assumed the production of an additional meson near the threshold. On the basis of this theory and by taking account of the interaction of particles in the final state, better agreement with the experiments can be obtained also at these energies. Using the matrix element $S^2 = 1 + ck_{12} + dk_{13}$ the following values are obtained for the mean angles of emission between the secondary particles (calculated according to G. I. Kopylov): $\bar{\theta}^*_{\pi^+\pi^-} = 109.0^\circ$; $\bar{\theta}^*_{\pi^-n} = 119.0^\circ$; $\bar{\theta}^*_{\pi^-n} = 131.0^\circ$. This is in good agreement with the experiment. The authors thank Professor V. P. Dzhelepov and L. I. Lapidus for their interest, and G. I. Popylov for assistance and discussions. There are 3 figures and 5 Soviet-bloc references.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

Card 3/3

BATUSOV, Yu.A.; BUNYATOV, S.A.; SIDOROV, V.M.; YARBA, V.A.

$\pi\pi$-Interaction and the cross-sectional ratio of the reactions $\pi N \rightarrow \pi\pi N$ at an energy of 290 Mev. Zhur. eksp. i teor. fiz. 40 no.5:1528-1530 My '61. (MIRA 14:7)

1. Ob"yedinennyy institut yadernykh issledovaniy.

(Nuclear reactions) (Protons)
(Mesons)

③

BATUSOV, Yu. A., BUNYATOV, S. A., SIDOROV, V. M. and YARBA, V. A.

"The Reaction $\pi^- + p \to \pi^+ + \pi^- + n$ at 210-310 Mev and $\pi\pi$ -Interaction" report presented at the Intl. Conference on High Energy Physics, Geneva, 4-11 July 1962

Joint Institute for Nuclear Research
Laboroatory of Nuclear Problems

S/056/62/043/006/007/067
B184/B102

AUTHORS: Batusov, Yu. A., Bunyatov, S. A., Sidorov, V. M., Yarba, V. A.

TITLE: The reaction $\pi^- + p \rightarrow \pi^+ + \pi^- + n$ at energies of 240 Mev and $\pi\pi$-interaction

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 6(12), 1962, 2015-2018

TEXT: The reaction $\pi^- + p \rightarrow \pi^+ + \pi^- + n$ was studied in a photoemulsion chamber at a mean primary pion energy of 240 ± 15 Mev. The mass spectrum of the $\pi^+\pi^-$ system was taken in the interval between 280 and 350 Mev. Out of the 255 events chosen (selection method in DAN SSSR, 133, 52, 1960) both pions came to rest in 85% of the events; their energy was determined from the track; in the remaining 15% the meson left the chamber. Its energy was determined from the ionization. The measurement accuracy of the mass of the $\pi^+\pi^-$ system was 1.5-3.0 Mev. As compared with the phase volume of all events recorded in the chamber, the experimentally determined mass spectrum is shifted systematically to the side of the higher mass values. If the experimental data are divided by the phase volume at the corresponding points it follows that the matrix element increases with increasing energy

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BATUSOV, Yu.A.; BUNYATOV, S.A.; SIDOROV, V.M.; YARBA, V.A.

The $\pi^- + p \rightarrow \pi^- + \pi^- + n$ reaction at an energy of 240 Mev. and $\pi\pi$-interaction. Zhur.eksp.i teor.fiz. 43 no.6:2015-2017 D '62.

(MIRA 16:1)

1. Ob"yedinennyy institut yadernykh issledovaniy.
(Mesons) (Nuclear reactions)

BATUSOV, Yu.A.; BUNYATOV, S.A.; DO IN SEB; SIDOROV, V.M.; YARBA, V.A.

[Use of the Chew-Low method in studying the $(\pi^+-\pi^-)$-interaction at low energies] Issledovanie $(\pi^+-\pi^-)$-vzaimodeistviia pri nizkikh energiiakh metodom Chu i Lou. Dubna, Ob"edinennyi in-t iadernykh issledovanii, 1963. 11p. (MIRA 16:6)

(Nuclear reactions)

BATUSOV, Yu.A.; BUNYATOV, S.A.; DO IN SEB; SIDOROV, V.M.; YARBA, V.A.

Use of Chew and Low's method in studying $\pi^+ \pi^-$-interactions at low energies. Zhur. eksp. i teor. fiz. 45 no.4:913-920 O '63. (MIRA 16:11)

1. Ob"yedinennyy institut yadernykh issledovaniy.

ACCESSION NR: AP4019256 S/0056/64/046/002/0817/0818

AUTHORS: Batusov, Yu. A.; Bunyatov, S. A.; Sidorov, V. M.; Yarba, V. A. [redacted]

TITLE: Double charge exchange of positive pions

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 817-818

TOPIC TAGS: Pion, Pi meson, positive pion, charge exchange, double charge exchange, positive pion charge exchange, secondary positive pion, emulsion technique

ABSTRACT: The production of a positive pion in collisions between negative pions and nuclei, by double charge exchange, via the reactions

$$\begin{array}{l} \pi^- + p \rightarrow \pi^0 + n \\ \qquad\quad \downarrow \\ \qquad\quad \pi^0 + p \rightarrow \pi^+ + n \end{array}$$

Card 1/3

ACCESSION NR: AP4019256

or

$$\pi^- + (2p) \rightarrow \pi^+ + (2n).$$

which is difficult to separate in pure form and which yield additional information on the interaction between charged neutral mesons with nucleons in complex nuclei, has been investigated by exposing a pellicle stack $\bar{Z}$ = 21) in a synchrocyclotron to a beam of 80-MeV positive pions. The pellicles were scanned for the secondary pions produced as energies much lower than the meson production threshold, for only then could the positive pions be produced by double charge exchange. The cross section obtained for double charge exchange at 30--80 MeV was (5 ± 1) x 10^{-28} cm^2. There was no double charge exchange for 0--30 MeV primary pions. "The authors are grateful to Prof. V. P. Dzhelepov for a discussion of the results and to V. I. Petrukhin for help in the irradiation of the pellicle stacks." Orig. art. has: 4 formulas.

Card 2/3

ACCESSION NR: AP4019256

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: 04Dec63 DATE ACQ: 27Mar64 ENCL: 00

SUB CODE: PH NO REF SOV: 001 OTHER: 001

Card 3/3

BATUSOV, Yu.A.; BYNYATOV, S.A.; SIDOROV, V.M.; YARBA, V.A.

Total cross sections of the $\pi^- + p \rightarrow \pi^+ + \pi^- + n$ reaction near the threshold and the angular distributions of secondary particles. IAd. fiz. 1 no.3:526-532 Mr '65. (MIRA 18:5)

1. Ob"yedinennyy institut yadernykh issledovaniy.

BATUSOV, Yu.A.; BUNYATOV, S.A.; SIDOROV, V.M.; YARBA, V.A.

The $\pi^- p \rightarrow \pi^+ \pi^- n$ reaction near the threshold, and $\pi\pi$-interaction. IAd. fiz. 1 no.4:687-692 Ap '65. (MIRA 18:5)

1. Ob"yedinennyy institut yadernykh issledovaniy.

LAYKEVICH, S.S.; BATUTIN, Yu.A.; CHALOV, N.V.

Use of automatic elevators by the Noril'sk expedition. Biul. nauch.-tekh.inform.VIMS no.1:51-55 '60. (MIRA 15:5)

1. Krasnoyarskoye geologicheskoye upravleniye.
(Noril'sk region--Hoisting machinery) (Automatic control)

Batutina, N.

BATUTINA, N., inzh.; SHUVALOV, A., inzh.; KIRSANOV, A., inzh.

Large-block construction in Chelyabinsk. Stroitel' no.11:2-4
N '57. (MIRA 10:12)

(Chelyabinsk--Apartment houses)

BATUYEV, A.

The Yur'yevets "sea". Izv. Vses. geog. ob-va 96 no.3:241 '64
(MIRA 17:8)

BATUYEV, A.

Effect of exclusion of the visual and olfactory analyzers on conditioned motor reflexes in rabbits. Biul.SNO LGU no.1:64-69 '58. (MIRA 13:6)

(Conditioned response)

BATUYEV, Andrey Mikhaylovich; GRODENSKIY, G.P., otv. red.

[Martik and other animals] Martik i drugie. Leningrad, Detskaia literatura, 1965. 86 p. (MIRA 18:9)

BATUYEV, A.S.

Effect of enucleation on motor acts in squirrels. Uch. zap. LGU no.239:69-76 '58. (MIRA 12:1)

1. Laboratoriya fiziologii vysshey nervnoy deyatel'nosti Fiziologicheskogo instituta Leningradskogo gosudarstvennogo universiteta.
(CEREBRAL CORTEX) (VISION) (ANIMAL MECHANICS)

BATUYEV, A. S., Cand Bio Sci, "On the functional structure of motor acts in the spatial orientation of animals." Leningrad, 1960. (Acad Sci USSR. Inst of Physiology im Acad I. P. Pavlov). (KL, 2-61, 203).

BATUYEV, A.S.; DYMNIKOVA, L.P.

Influence of the cutting off of visual reception on various forms of motor acts in rabbits. Vop. srav. fiziol. anal. no. 1:72-78 '60. (MIRA 14:4)

1. The Higher Nervous Activity Physiological Laboratory, University of Leningrad.

(CONDITIONED RESPONSE) (EYE—WOUNDS AND INJURIES)

BATUYEV, A.S.

Compensatory function of the motor analysor following exclusion of visual reception. Nauch.dokl.vys.shkoly; biol.nauki no.2:63-66 '60. (MIRA 13:4)

1. Rekomendovana kafedroy fiziologii vysshey nervnoy deyatel'nosti Leningradskogo gosudarstvennogo universiteta im. A.A. Zhdanova.
(CEREBRAL CORTEX) (RECEPTORS (NEUROLOGY))

BATUYEV, A.S.

Interaction of the visual, motor and vestibular analysors in the formation of the aimed jump of a cat. Vest. LGU 15 no.3:164-173 '60. (MIRA 13:1)

(Animal locomotion)

BATUYEV, A.S.

Evaluating the role of the motor cortex in the formation and execution of movements. Vest LGU 15 no.15:120-132 '60. (MIRA 13:8)
(Animal locomotion) (Cerebral cortex)

NITS[illegible], A.A.; BATUYEV, A.S.

Biology into the practice; conference of the Scientific Society of Students of the Department of Biology and Soil Science. Vest.MGU 16 no.21:268-269 '61. (MIRA 14:11)

(BIOLOGY)

BATUYEV, A.S.; SYTINSKIY, I.A.

Effect of gamma-aminobutyric acid on the strychnine-induced potential of the cerebral cortex. Dokl. AN SSSR 147 no.5:1242-1243 D '62.
(MIRA 16:2)

1. Fiziologicheskiy institut im. A.A. Ukhtomskogo Leningradskogo gosudarstvennogo universiteta im. A.A. Zhdanova. Predstavleno akademikom V.N. Chernigovskim.
(BUTYRIC ACID) (STRYCHNINE—PHYSIOLOGICAL EFFECT)
(ELECTROENCEPHALOGRAPHY)

BATUYEV, A.S.; NIKITINA, I.P.; AYRAPET'YANTS, E.Sh., prof., red.

[Handbook for practical lessons in physiology] Rukovodstvo k prakticheskim zaniatiiam po fiziologii. Pod red. E.Sh. Airapet'iantsa. Leningrad, Izd-vo Leningr. univ., 1963. 305 p.
(MIRA 16:6)

1. Zaveduyushchiy kafedroy fiziologii vysshey nervnoy deyatel'nosti Leningradskogo gosudarstvennogo universiteta im. A.A. Zhdanova (for Ayrapet'yants).
(PHYSIOLOGY--STUDY AND TEACHING)

BATUYEV, A.S.

Some mechanisms of compensatory and substitutionary functions of a motor analyzer after the elimination of visual reception. Nauch. dokl. vys. shkoly; biol. nauki no.3:63-68 '63. (MIRA 16:9)

1. Rekomendovana kafedroy fiziologii vysshey nervnoy deyatel'hosti Leningradskogo gosudarstvennogo universiteta im. A.A.Zhdanova.
(RECEPTORS (NEUROLOGY)) (CONDITIONED RESPONSE)

BATUYEV, A.S.; VASIL'YEVA, L.A.; SYTINSKIY, I.A.

Effect of gamma-aminobutyric acid on strychnine-induced and evoked potentials, and on direct excitation of the cerebral cortex. Nerv. sist. no.4:111-115 '63 (MIRA 18:1)

1. Fiziologicheskiy institut Leningradskogo universiteta.

BATUYEV, A.S.

Change in the bioelectric activity of the cortex of a rabbit after the exclusion of visual reception. Vest. LGU 18 no.15: 98-111'63. (MIRA 16:9)

(ELECTROENCEPHALOGRAPHY) (VISION)

BATUYEV, A.S.; BOGOSLAVSKIY, M.M.

Relations between the occipital and motor areas of the cerebral cortex in cats; electrophysiological research. Fiziol. zhur. 49 no.9:1017-1025 S '63.
(MIRA 17:12)

1. Kafedra fiziologii vysshey nervnoy deyatel'nosti Gosudarstvennogo universiteta imeni A.A. Zhdanova, Leningrad.

BATUYEV, A.S.; SAMOYLOVA, L.A.

Taste analysis in cats following the extirpation of sigmoid gyri. Nauch. dokl. vys. shkoly; biol. nauki no.3:68-71 '64
(MIRA 17:8)

1. Rekomendovana kafedroy fiziologii vysshey nervnoy deyatel'nosti Leningradskogo gosudarstvennogo universiteta im. A.A. Zhdanova.

BATUYEV, A.S.; YEGOROVA, N.P.

Functional role of the cortical end of the visual analysor following its exclusion from the peripheral apparatus. Nerv. sist. no.5:66-72 '64. (MIRA 18:3)

1. Laboratoriya fiziologii vysshey nervnoy deyatel'nosti Leningradskogo gosudarstvennogo universiteta.

BATUYEV, A.S.

Mechanisms of the interaction of visual and auditory analyzers. Zhur. vys. nerv. deiat. 14 no.5:834-346 S-O '64.

(MIRA 17:12)

1. Chair of Higher Physiology of Nervous Activity, Leningrad University.

AYRAPET'YANTS, E.Sh.; BATUYEV, A.S.

Sechenov's ideas on the role of muscular sense in space analysis and their experimental elaboration. Vest. LGU 19 no.3:7-20 '64.
(MIRA 17:3)

BABMINDRA, V. P.; BATUYEV, A. S.

Interneuronal connections in the cortical ending of the motor analysor following the exclusion of visual reception. Vest. LGU 19 no.9:118-121 '64. (MIRA 17:7)

BATUYEV, A.S. (Leningrad); OGNEVA, Ye.F. (Leningrad)

Teaching physiology in institutions for higher education. Fiziol.zhur. 51 no.11:1384-1385 N '65.

(MIRA 18:11)

L 24759-66

ACC NR: AP6015519 SOURCE CODE: UR/0221/65/059/001/0128/0144

AUTHOR: Batuyev, A. S. (Leningrad); Sytinskiy, I. A. (Leningrad)

ORG: none

32
B

TITLE: Physiological action of gamma-aminobutyric acid in the central nervous system of vertebrates

22

22

SOURCE: Uspekhi sovremennoy biologii, v. 59, no. 1, 1965, 128-144

TOPIC TAGS: central nervous system, cerebral cortex, amino acid, reflex activity, neurophysiology, cat, rat, conditioned reflex

ABSTRACT: Isolation of gamma-aminobutyric acid (GABA) from the brain of human beings and animals only induced considerable interest in the role of this substance in the functional activity of the central nervous system. It was established that GABA is identical with the inhibiting factor (I-factor) and that it is counteracted by strychnine (just as acetylcholine is counteracted by atropine). In experiments on cats, thiosemicarbazide counteracted the inhibiting effect of GABA on spinal reflexes. The relations between GABA and other substances exerting an inhibiting action in the brain (gamma-aminobutyrylcholine, gamma-guanidine-butyric acid, gamma-aminobutyrylhistidine, etc.), which are apparently derived from GABA and are converted into it, were subjected to study. The mechanism of the synaptic action of GABA was

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ACC NR: AP6015519

investigated experimentally. Its action on conditioned reflexes was studied. L. Chiosa et al (Studii si Cercetari, 21, 1959) found that parenteral administration of GABA to rats inhibited conditioned defense reactions and suppressed posture reflexes. Batuyev et al established that injection of GABA into the occipital part of the cerebral cortex of cats inhibited conditioned motor feeding reflexes associated with activities of the visual and auditory analysors. Since the conference on GABA held in the US in 1959, research on the action of this compound and problems related to this action has expanded considerably. This is demonstrated by the information on the functional role of GABA and experimental and clinical data pertaining to it which were presented at the All-Union symposium on the subject held in 1964 at Leningrad./[JPRS]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 022 / OTH REF: 086

Card 2/2 UVP

BATUYEV, B.K.

Calculation of labor productivity. Vest.sviazi 21 no.10:14 O '61. (MIRA 14:10)

1. Glavnyy inzh. Sverdlovskoy mezhdugorodnoy telefonnoy stantsii.
(Telecommunication—Costs)

BATUYEV, G.S., kand. tekhn. nauk; FEDOSOV, A.A., kand. tekhn. nauk; YEFREMOV, A.K., inzh.

Collision of solid bodies in case of elastoplastic deformations in the contact area. Rasch.na proch. no.10:363-390 '64.

(MIRA 18:1)

BATYGIN, K.

Privileges for workers in the Far North. Okhr. truda i sots. strakh. 4 no.8:38-39 Ag '61. (MIRA 14:11)

1. Zamestitel' zaveduyushchego otdelom Vsesoyuznogo tsentral'nogo soveta professional'nykh soyuzov po gosudarstvennomu sotsial'nomu strakhovaniyu.

(Russia, Northern--Insurance, Social)

BATUYEV, K. M.

"The Anatomy of Intervertebral Disks of Man and Certain Animals." Cand Med Sci, Molotov State Medical Inst, Molotov, 1954. (KL, No 5, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

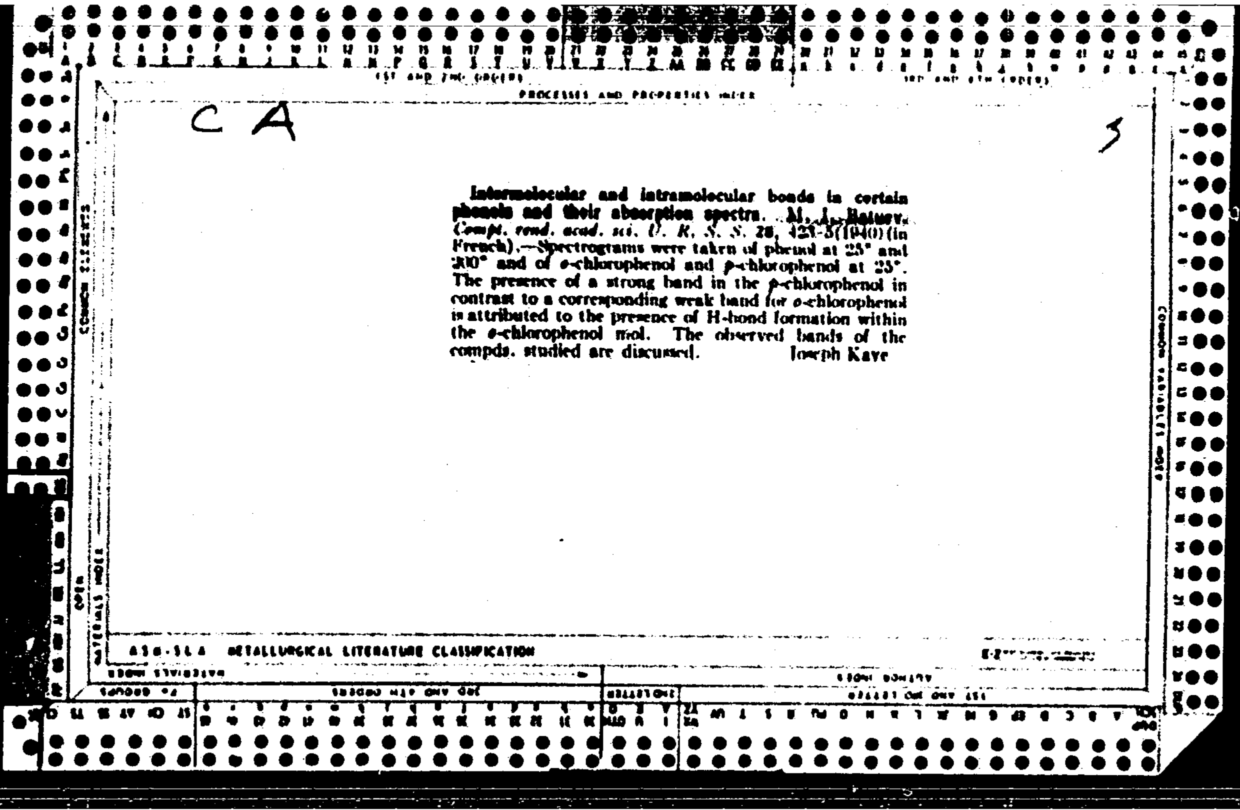
PROCESSES AND PROPERTIES INDEX

BC

A-1

Optical investigation of the intramolecular hydrogen bond. M. Batuev (*J. Phys. Chem. Russ.*, 1940, **14**, 1064—1073).—The presence or absence of the absorption band at 1·4 μ. is no reliable indication of the absence or presence of H bond as the behaviour of other OH bands can differ from that of 1·4 μ. Combination spectrum gives more reliable information. The OH band of PhOH at 45° has no max. and extends from 3291 to 3551 cm.$^{-1}$; that of *p*-$C_6H_4Cl{\cdot}OH$ at 25° is similar and lies between 3297 and 3557 cm.$^{-1}$ In both these cases associated complexes are present. The OH bands of PhOH at 200° and of *o*-$C_6H_4Cl{\cdot}OH$ at 25° have max. at 3567 and 3523 cm.$^{-1}$ respectively, showing that unassociated OH groups are preponderant. J. J. B.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND ORDERS
PROCESSES AND PROPERTIES INDEX
3RD AND 4TH ORDERS

C A

3

Intermolecular and intramolecular bonds in certain phenols and their absorption spectra. M. I. Batuev. *Compt. rend. acad. sci. U. R. S. S.* 28, 423-5(1940)(in French).—Spectrograms were taken of phenol at 25° and 300° and of *o*-chlorophenol and *p*-chlorophenol at 25°. The presence of a strong band in the *p*-chlorophenol in contrast to a corresponding weak band for *o*-chlorophenol is attributed to the presence of H-bond formation within the *o*-chlorophenol mol. The observed bands of the compds. studied are discussed. Joseph Kaye

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

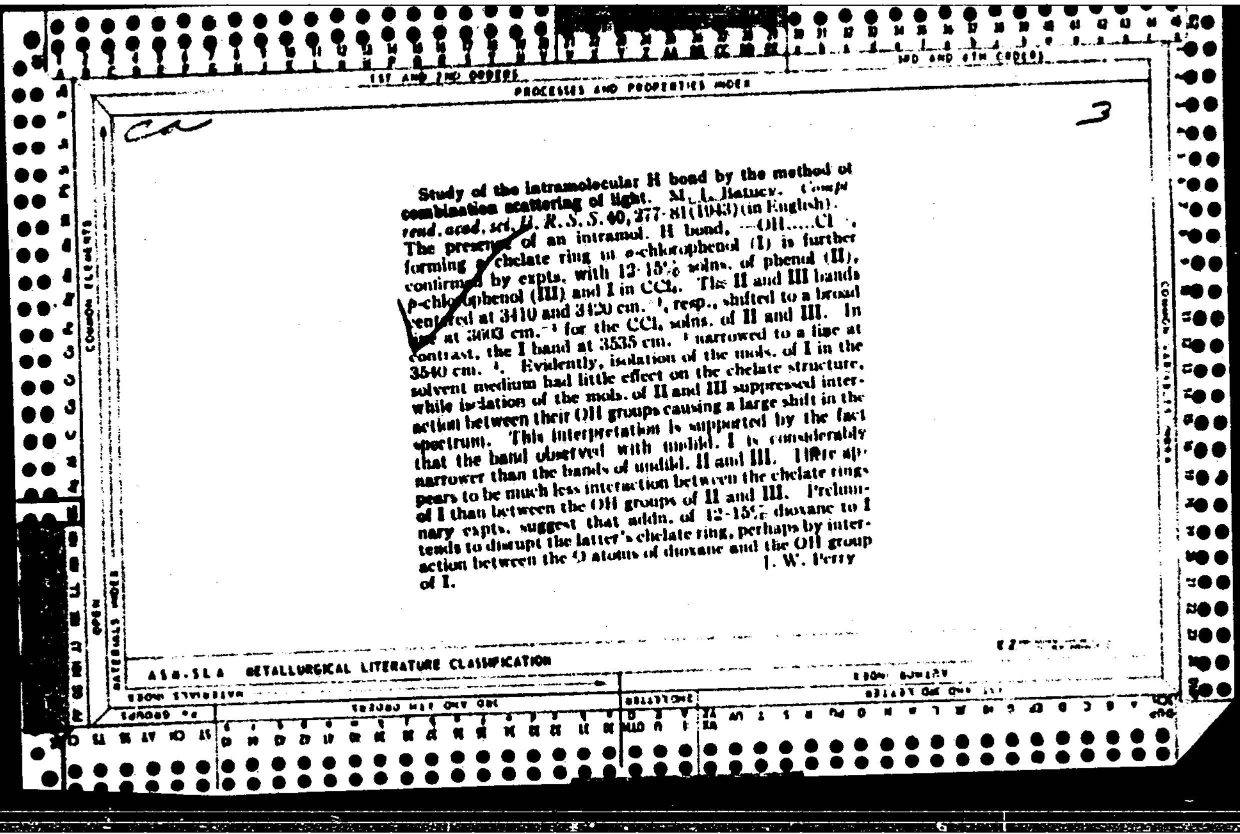
CA

2

The hydrogen bond. M. I. Batuev and O. S. Landsberg. *Uspekhi Khim.* 10, 416-65(1941).—Review. The physicochem. properties of substances forming intermol. hydrogen bond compds., hydrogen bond compds., their mol. wts., distribution coeffs. and solubilities of org. liquids in H_2O, and of gases in org. substances, deviations from Raoult's law, b. p., mol. polarizations and dielec. consts. and assocn. coeffs. are discussed. Chelated compds. are considered also from the standpoint of vapor tension, crit. temp., surface tension, d. and parachor. Hydrogen bonds can be investigated by means of infrared spectra and Raman spectra. Data for many substances are given.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

Ca

3

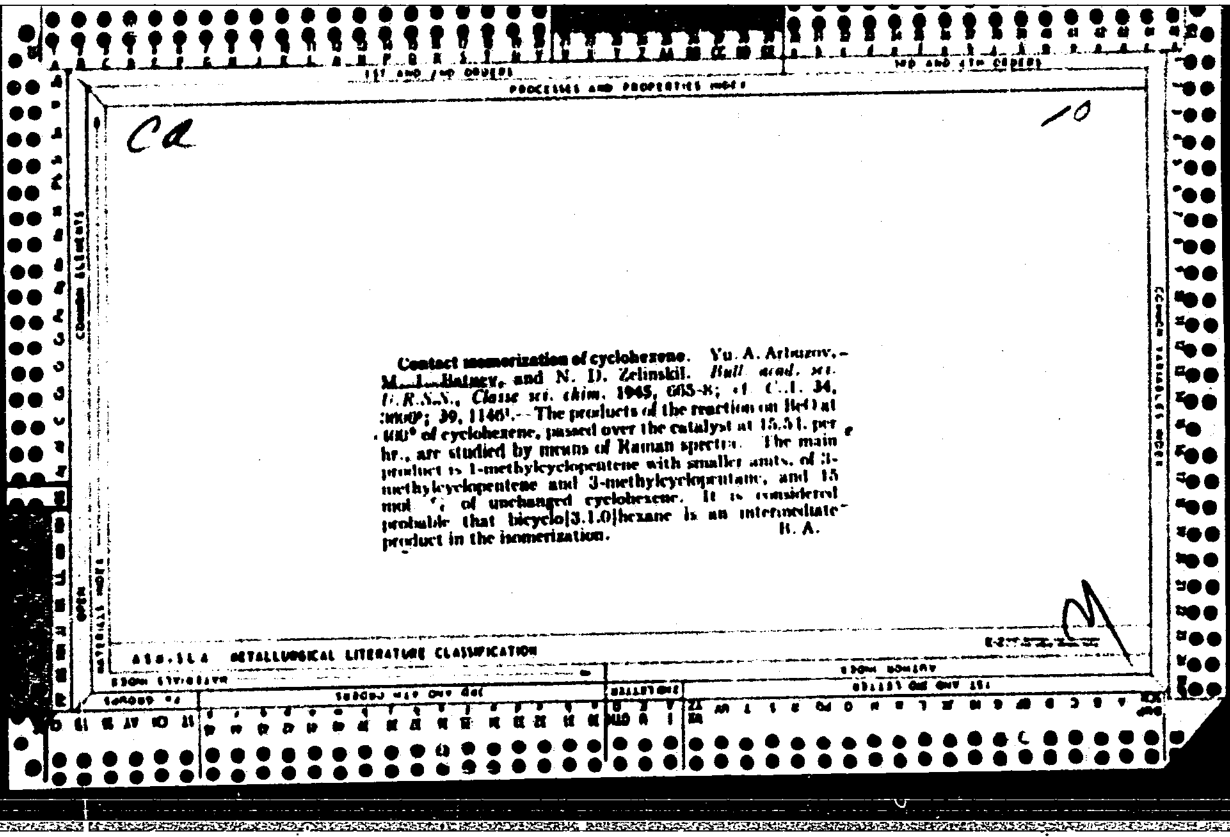
Study of the intramolecular H bond by the method of combination scattering of light. M. L. Batuev. *Compt. rend. acad. sci. U.R.S.S.* 40, 277-81(1943)(in English).—The presence of an intramol. H bond, —OH.....Cl—, forming a chelate ring in o-chlorophenol (I) is further confirmed by expts. with 12-15% solns. of phenol (II), p-chlorophenol (III) and I in CCl₄. The II and III bands centered at 3410 and 3420 cm.⁻¹, resp., shifted to a broad line at 3603 cm.⁻¹ for the CCl₄ solns. of II and III. In contrast, the I band at 3535 cm.⁻¹ narrowed to a line at 3540 cm.⁻¹. Evidently, isolation of the mols. of I in the solvent medium had little effect on the chelate structure, while isolation of the mols. of II and III suppressed interaction between their OH groups causing a large shift in the spectrum. This interpretation is supported by the fact that the band observed with undild. I is considerably narrower than the bands of undild. II and III. There appears to be much less interaction between the chelate rings of I than between the OH groups of II and III. Preliminary expts. suggest that addn. of 12-15% dioxane to I tends to disrupt the latter's chelate ring, perhaps by interaction between the O atoms of dioxane and the OH group of I.

J. W. Perry

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

BATUYEV, M. I.

"On Contact Transformations of Cyclohexadiene- 1,3 and Cyclohexadiene-1, 4," Iz. Akad. Nauk SSSR, Otdel. Khim. Nauk, No. 5, 1945.



1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

10

Contact isomerization of cyclohexene. Yu. A. Arbuzov, M. I. Batuev, and N. D. Zelinskii. *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1945, 665-8; cf. C.A. 34, 3000; 39, 1146.—The products of the reaction on [illegible] at 400° of cyclohexene, passed over the catalyst at 15.5 l. per hr., are studied by means of Raman spectra. The main product is 1-methylcyclopentene with smaller amts. of 3-methylcyclopentene and 3-methylcyclopentane, and 15 mol. % of unchanged cyclohexene. It is considered probable that bicyclo[3.1.0]hexane is an intermediate product in the isomerization. B. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

A study of the intramolecular hydrogen bond of guaiacol by the method of the combination scattering of light III. M. I. Batuev (Inst. Org. Chem., Acad. Sciences U.S.S.R.). *Compt. rend. acad. sci. U.R.S.S.* 47, 97-100; *Doklady Akad. Nauk S.S.S.R.* 47, 100-3(1945). In *the scattering spectra (Raman) of phenol* (I), *p-chlorophenol* (II), *o-chlorophenol* (III), and *guaiacol* (IV), the middle of the band of the OH group occurs at 3410 ± 15, 3420 ± 15, 3380 ± 15, and 3535 ± 15 cm.$^{-1}$, resp., the bands being 250, 300, 120, and 110 cm.$^{-1}$ wide. Dil. solns. (12 to 15%) of I, II, and III in CCl_4 exhibit bands at 3583 ± 5, 3602 ± 5, 3540 ± 5, resp., while IV in benzene has a band at 3540 ± 5. Solns. of IV with 25% of Me_2CO still have a distinct band at 3535 cm.$^{-1}$, which becomes barely perceptible with 40% of solvent, and disappears with 50%. The data indicated that there exists an intramol. H bond in guaiacol, which stands in the way of intermol. interaction in the liquid state; the state of assocn. of the mols. appears to be the same in the liquid state as in the 12% benzene soln. In Me_2CO, H bonding takes place with the solvent and soon replaces the intramol. bonding. George Gorin

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

2ND AND 4TH ORDERS

BC

a-3

46, No. 4

[illegible] isomerization of Δ[illegible] and [illegible] of the [illegible] method. [illegible] cond. N. D. [illegible] When Acad. [illegible] Δ[illegible] formed. branched [illegible] Hydro[illegible] presence and th[illegible] of [illegible] 480° [illegible] at 5 g. [illegible] 115°/[illegible] at 1[illegible] to [illegible] 116—117 [illegible] 116—120°/[illegible] Use (I) and [illegible] of SiO_2 gel at 480° (4 g. per hr.) gives similar products. A. T. P.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

[redacted]

PROCESSES AND PROPERTIES INDEX

Ca

10

Simultaneous transformation of cyclopentene into cyclopentane and cyclopentadiene in the presence of catalysts. A. F. Plate and M. I. Batuev. *J. Gen. Chem.* (U.S.S.R.) 16, 805-10(1946).—Cyclopentene was passed over a Cr_2O_3-Al_2O_3 catalyst at 450° and 500° at a space velocity 0.6-0.7 and was also heated in the presence of Pd black in a sealed tube at 180-200°. In both cases the reaction mixt. was found to contain cyclopentadiene and cyclopentane (both present in amts. of about 1-3%), which were detected by spectroscopic methods. The possibility of differentiation between the irreversible catalysis of cyclopentene and disproportionation of H in respect to reaction rates is discussed from thermodynamic considerations.

G. M. Kosolapoff

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

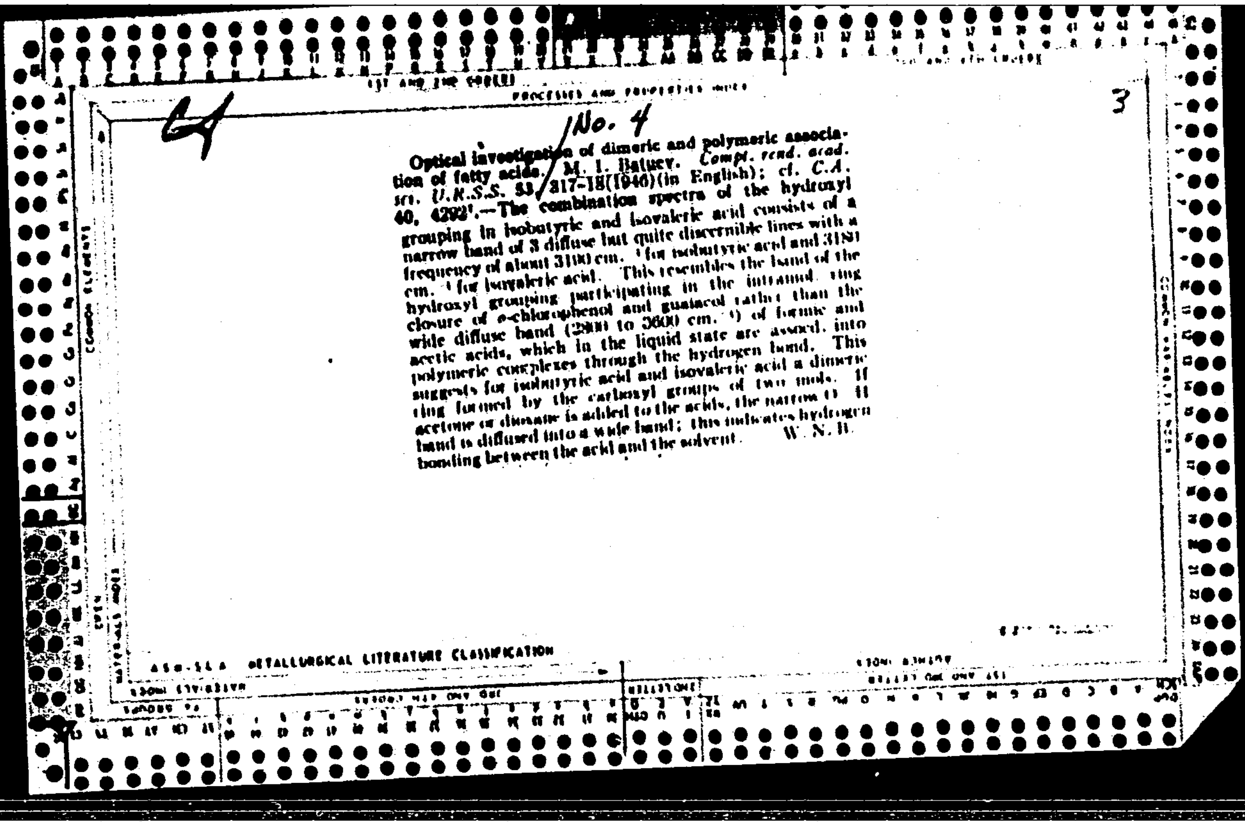
[redacted]

Batuyev, M. I.
(Acad. Sci., USSR, Leningrad) No. 5
Compt. rend. acad. sci. URSS 52, /401-4 (1946)

CA: 41-1936/i

Study of the hydrogen bond in formic and acetic acids by the method of combination scattering of light. IV.

[redacted]



64

3

No. 4

Optical investigation of dimeric and polymeric association of fatty acids. M. I. Batuev. *Compt. rend. acad. sci. U.R.S.S.* 53, 317-18(1946)(in English); cf. *C.A.* 40, 4292'.—The combination spectra of the hydroxyl grouping in isobutyric and isovaleric acid consists of a narrow band of 3 diffuse but quite discernible lines with a frequency of about 3100 cm.$^{-1}$ for isobutyric acid and 3181 cm.$^{-1}$ for isovaleric acid. This resembles the band of the hydroxyl grouping participating in the intramol. ring closure of *o*-chlorophenol and guaiacol rather than the wide diffuse band (2900 to 3600 cm.$^{-1}$) of formic and acetic acids, which in the liquid state are assocd. into polymeric complexes through the hydrogen bond. This suggests for isobutyric acid and isovaleric acid a dimeric ring formed by the carboxyl groups of two mols. If acetone or dioxane is added to the acids, the narrow OH band is diffused into a wide band; this indicates hydrogen bonding between the acid and the solvent. W. N. H.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

CA

3

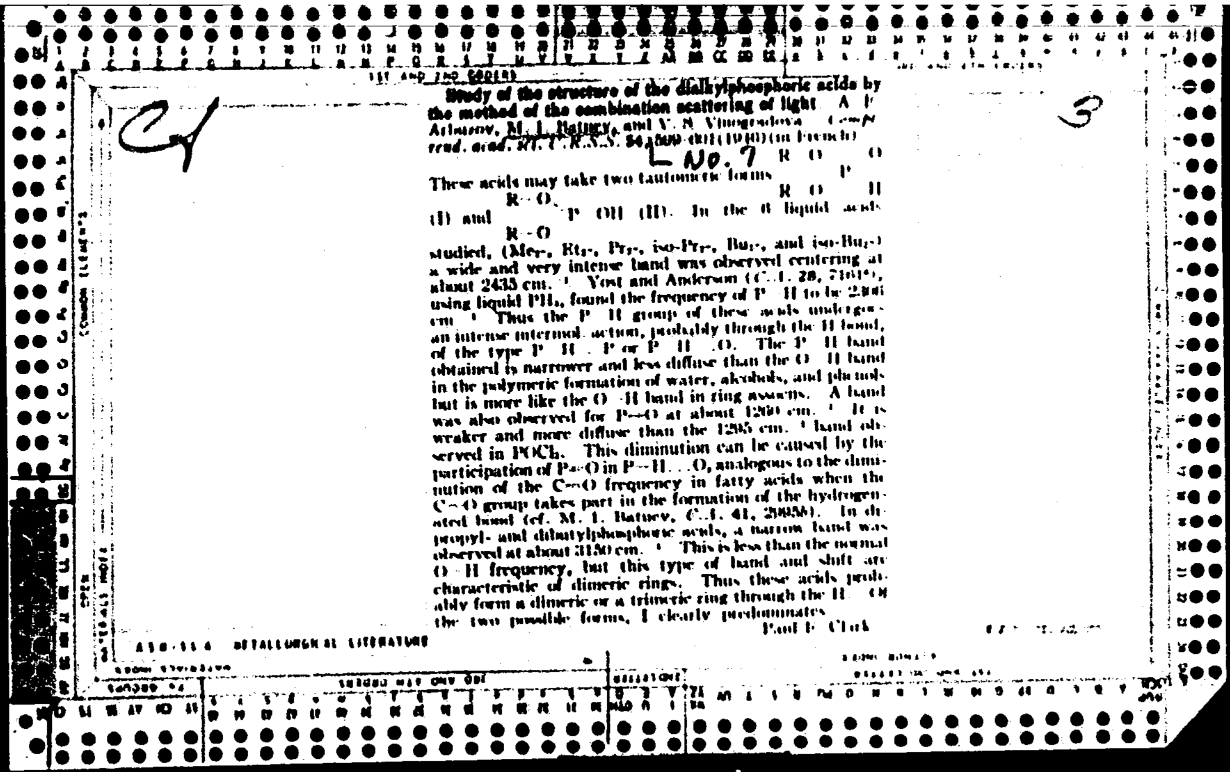
Effect of the hydrogen bond on the frequencies of the carbonyl grouping in the fatty acids. M. I. Batuev (Acad. Sci. U.S.S.R., Leningrad). *Compt. rend. acad. sci. U.R.S.S.* 53, 507-10(1946)(in English); cf. *C.A.* 41, 1936*i* and preceding abstract. No. 6 —The frequency of the C═O group was measured for the pure acids and their solns. in dioxane. The exciting line for the Raman spectra was 4358 A.

Substance	C═O frequency, cm.$^{-1}$	Frequency character
I Formic acid	1670(6*b*), 1721(3*b*)	Band width 90 cm.$^{-1}$
" + 30% dioxane	1670(4*b*), 1724(4*b*)	Same
" + 90% dioxane	1730(4)	Narrow line
II Acetic acid	1668(6), 1713(2*b*), 1743(2*b*)	3 diffuse lines
" + 30% dioxane	1668(2), 1713(2*b*), 1743(4*b*)	Same
" + 90% dioxane	1740(4*b*)	Line
III Propionic, butyric, isobutyric, isovaleric, trimethylacetic, diethylacetic, and enanthic acids	1656-70(6)	Line
Isovaleric + 30% dioxane	1660(2), 1740(4)	2 lines
" + 60% dioxane	1740(4)	Narrow line

(Numbers in parentheses are intensities, *b* means broad.)

The 1650-1670 cm.$^{-1}$ frequency is interpreted as the C═O frequency of the cycle dimer which predominates in group III; it is also present in groups I and II. The 1740 cm.$^{-1}$ frequency is characteristic for a C═O which is free from a H bond. Its exclusive appearance in weak dioxane solns. shows absence of dimers and polymers. E. M. C.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND ORDERS

C4

3

Study of the structure of the dialkylphosphoric acids by the method of the combination scattering of light. A. E. Arbuzov, M. I. Batuev, and V. N. Vinogradova. *Compt. rend. acad. sci. U.R.S.S.* 54, 599-601(1946)(in French).

L No. 7

These acids may take two tautomeric forms $(RO)_2P(O)H$ (I) and $(R-O)_2P-OH$ (II). In the 6 liquid acids studied, (Me₂-, Et₂-, Pr₂-, iso-Pr₂-, Bu₂-, and iso-Bu₂-) a wide and very intense band was observed centering at about 2435 cm.$^{-1}$. Yost and Anderson (C.A. 28, 7161⁴), using liquid PH_3, found the frequency of P-H to be 2300 cm.$^{-1}$. Thus the P-H group of these acids undergoes an intense intermol. action, probably through the H bond, of the type P-H...P or P-H...O. The P-H band obtained is narrower and less diffuse than the O-H band in the polymeric formation of water, alcohols, and phenols but is more like the O-H band in ring associations. A band was also observed for P=O at about 1250 cm.$^{-1}$. It is weaker and more diffuse than the 1295 cm.$^{-1}$ band observed in $POCl_3$. This diminution can be caused by the participation of P=O in P-H...O, analogous to the diminution of the C=O frequency in fatty acids when the C=O group takes part in the formation of the hydrogenated bond (cf. M. I. Batuev, C.A. 41, 2005h). In dipropyl- and diisobutylphosphoric acids, a narrow band was observed at about 3150 cm.$^{-1}$. This is less than the normal O-H frequency, but this type of band and shift are characteristic of dimeric rings. Thus these acids probably form a dimeric or a trimeric ring through the H. Of the two possible forms, I clearly predominates.

Paul F. Clark

ASB-SLA METALLURGICAL LITERATURE

3

Raman spectra of vinyl alkyl ethers. M. I. Batuev, R. N. Prilezhaeva, and M. F. Shostakovskii (Acad. Sci. U.S.S.R., Moscow). *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1947, 123-30(in Russian).—The Raman frequencies in cm.$^{-1}$ (with intensities on a 10 scale) are given in the following: MeOCH:CH$_2$ (I), 220(3d), 230(3d), 243(3d), 290(0), 306(0), 319(5), 332(5), 506(0), 515(2d), 525(2d), 534(3d), 579(1d), 599(1d), 806(3), 816(3), 830(3), 861(0), 872(1), 879(7), 893(7), 976(0), 985(0), 1000(4), 1017(2), 1043(0), 1052(3d), 1073(3d), 1088(3d), 1150(2), 1305(0), 1323(10), 1347(2), 1440(3d), 1459(3d), 1473(3d), 1612(6), 1639(3), 1653(3), 2874(1), 2901(1), 2930(1), 2937(2), 2953(1), 3008(3), 3024(3), 3080(0), 3108(2d); EtOCH:CH$_2$ (II), 248(5), 280(0), 400(5b), 419(0), 470(0), 500(4), 524(2), 595(3), 807(3d), 822(3d), 846(6), 944(2d), 967(2d), 1022(0), 1040(2d), 1096(0), 1116(5), 1304(5), 1320(10), 1355(0), 1412(1d), 1448(3d), 1460(2d), 1612(7), 1637(6), 1654(5), 2880(6), 2935(9), 2983(4), 3024(3), 3080(0); PrOCH:CH$_2$ (III), 224(3d), 238(3d), 256(3d), 313(1), 334(2d), 355(2d), 409(4), 470(2d), 500(2d), 599(3d), 643(0d), 760(1), 807(4d), 826(4d), 849(0d), 881(5), 904(3d), 967(2d), 985(2d), 1000(3d), 1025(3d), 1047(3d), 1110(2d), 1131(2d), 1149(2d), 1310(5), 1322(10), 1352(0), 1412(0), 1439(4d), 1453(4d), 1468(4d), 1612(6), 1641(5), 1651(3), 2878(10), 2913(3), 2940(10), 2975(3), 3024(3), 3080(0); iso-PrOCH:CH$_2$ (IV), 251(2d), 265(0), 310(0), 349(3d), 367(0), 411(3d), 485(3d), 508(5), 596(2d), 803(7), 818(7), 898(4), 926(1d), 941(2d), 973(1), 994(1), 1022(0), 1112(4d), 1127(3d), 1142(2d), 1180(2d), 1310(10), 1322(10), 1350(4), 1412(0), 1441(1), 1455(4), 1470(0), 1612(3), 1638(10), 1651(10), 2882(4), 2923(9), 2945(9), 2983(10), 3024(3), 3080(0); BuOCH:CH$_2$ (V), 222(3), 238(3), 263(0), 332(3d), 343(3d), 358(3d), 380(3d), 430(1d), 457(1d), 494(2d), 504(3d), 532(0d), 598(2d), 609(3d), 637(0), 808(4d), 825(4d), 839(5d), 912(3d), 940(3d), 959(3d), 980(3d), 1016(3d), 1027(3d), 1039(3d), 1066(3d), 1085(3d), 1108(3d), 1129(2d), 1149(2d), 1185(0), 1307(3), 1321(10), 1414(0), 1435(4d), 1455(4d), 1468(4d), 1611(7), 1638(5), 1653(4), 2871(10), 2913(9), 2940(9), 2967(6), 3022(3), 3080(0); iso-BuOCH:CH$_2$ (VI), 234(0), 290(0), 293(5), 366(0), 442(1), 455(5), 496(0), 537(0), 601(2d), 807(5), 823(5), 835(8), 941(3d), 988(4d), 1017(3), 1039(0), 1069(0), 1120(4d), 1131(4d), 1143(4d), 1181(3d), 1308(10), 1321(10), 1345(1), 1419(0), 1440(5d), 1455(5d), 1468(5d), 1612(6), 1643(5), 1655(3), 2875(10), 2912(7), 2943(3), 2970(10), 3023(2), 3081(0); iso-AmOCH:CH$_2$ (VII), 223(0), 243(3d), 267(1), 306(1d), 333(1d), 352(1d), 372(1d), 392(1d), 414(1d), 437(1d), 457(0), 477(0), 503(1d), 543(1d), 558(0d), 610(2d), 641(0), 705(2d), 734(0), 772(4), 814(6d), 828(3d), 894(0), 913(3), 923(3), 951(4), 962(4), 987(1d), 1010(0), 1040(0), 1057(0), 1135(4), 1152(0), 1169(2), 1307(4), 1321(10), 1330(0), 1443(4), 1451(4), 1468(4), 1610(5), 1641(4d), 1651(4d), 2873(10), 2912(5), 2943(5), 2975(10), 3018(1), 3081(0); Me(CH$_2$)$_2$CMeHOCH:CH$_2$ (VIII), 254(1d), 343(0d), 379(0d), 404(0d), 437(0), 498(1d), 514(0), 554(0), 629(0), 700(0), 709(0), 814(5d), 830(5d), 848(5d), 888(3d), 967(4d), 982(4d), 1071(4d), 1085(4d), 1116(4d), 1125(4d), 1140(1d), 1162(0), 1310(10), 1325(5), 1438(8), 1449(8), 1462(6), 1613(2), 1640(7), 1651(1), 2862(10), 2885(10), 2914(10), 2930(10), 2981(4b), 3025(4), 3082(0). The frequencies corresponding to valence vibrations C—H, both in the vinyl (3030-3090) and in the alkyl group (2880-2980), and the C—H δ-vibrations (1300-1470) are fairly const.; the C—H γ-vibrations are reflected in the region 800-840 and around 970. The frequencies of the alkyl C—C vibrations, above 900, and of the C—O vibrations, above 1000, vary considerably from one ether to another; likewise, there are marked differences in the frequencies of the deformation vibrations C—C and C—O, in the region 200-800. Common to all 8 ethers is the triplet 1612, 1640, 1650 corresponding to the double bond; by assuming the latter two lines to be the result of a Fermi-resonance splitting of the line 1645 through its interaction with the overtone 820, the doublet 1612, 1645 can be attributed to a rotation isomerism due to restricted rotation around the C—O bond, with the energy barrier somewhat enhanced owing to interaction of the paired electrons of O with the double bond, resulting in some superposition of the structure $H_2\overset{-}{C}.CH.\overset{+}{O}R$. The differences in the ratios of the intensities of the triplet lines in ethers of primary and secondary alkyls may be due to different wts. of the isomers. While the Fermi resonance effect is marked for the isomer corresponding to the 1645 frequency, absence of a similar splitting of the 1612 line may be due to insufficient dispersion of the app.; this line appears unmistakably as a doublet in II, III, and VI.

N. Thon

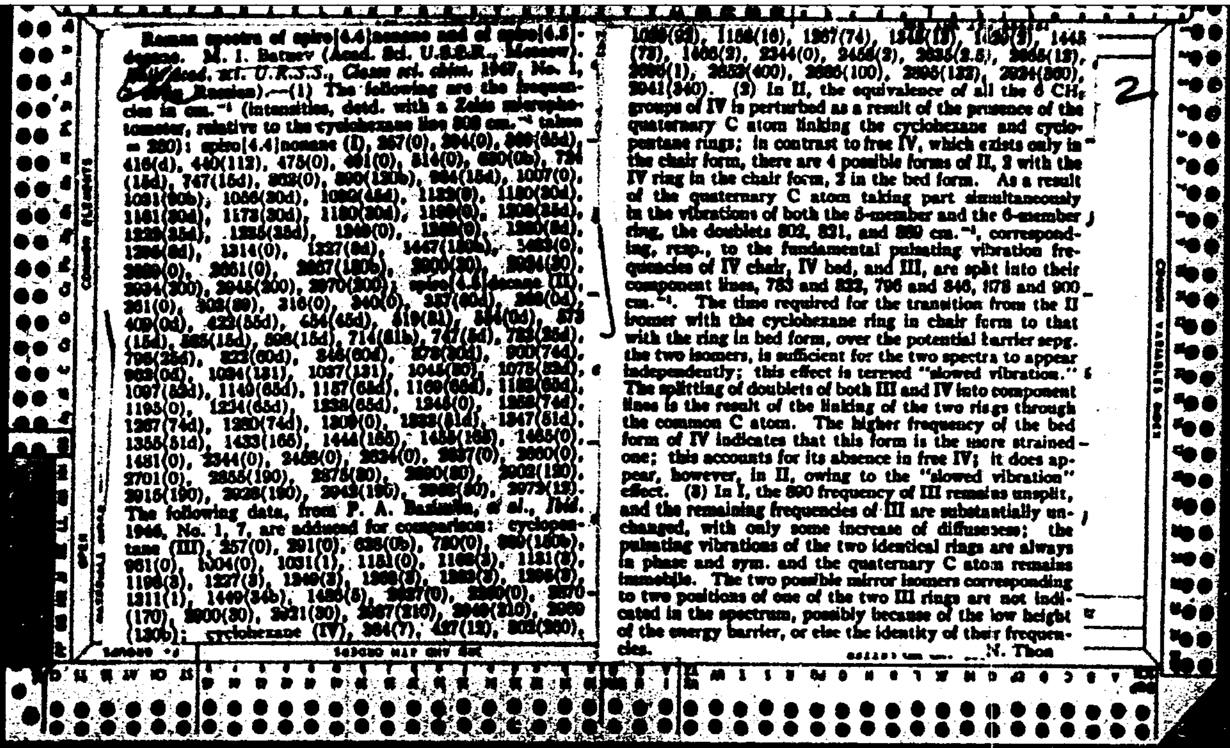
BATUEV, M. I. PA 8T9

USSR/Spectra, Vinyl Alkyl Ethers Feb 1947
Chemistry - Ethers

"The Combination Scattering of Light Spectra of Vinyl Alkyl Ethers," M. I. Batuev, E. N. Prilejaeva, M. F. Shostakovsky, 14 pp

"Izv Ak Nauk Khim" No 2

8T9



Raman spectra of spiro[4.4]nonane and of spiro[4.5]decane. M. I. Batuev (Acad. Sci. U.S.S.R., Moscow). *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1947, No. 1, 3-14 (in Russian).—(1) The following are the frequencies in cm.$^{-1}$ (intensities, detd. with a Zeiss microphotometer, relative to the cyclohexane line 802 cm.$^{-1}$ taken = 250): spiro[4.4]nonane (I), 257(0), 294(0), 369(65d), 416(d), 440(112), 475(0), 481(0), 514(0), 690(0b), 724(15d), 747(15d), 802(0), 890(120b), 934(154), 1007(0), 1031(90b), 1056(30d), 1090(45d), 1122(8), 1150(30d), 1161(30d), 1173(30d), 1180(30d), 1190(0), 1209(35d), 1229(35d), 1235(35d), 1249(0), 1269(0), 1290(8d), 1296(8d), 1314(0), 1327(8d), 1447(180b), 1463(0), 2859(0), 2861(0), 2867(180b), 2900(30), 2904(30), 2934(200), 2945(200), 2970(200); spiro[4.5]decane (II), 261(0), 302(80), 316(0), 340(0), 357(60d), 389(0d), 409(0d), 422(55d), 454(45d), 519(81), 544(0d), 573(15d), 585(15d), 598(15d), 714(81b), 747(5d), 783(35d), 796(35d), 822(60d), 846(60d), 878(30d), 900(74d), 963(0d), 1034(131), 1037(131), 1045(80), 1075(32d), 1097(82d), 1149(65d), 1157(65d), 1169(65d), 1185(65d), 1195(0), 1234(65d), 1238(65d), 1248(0), 1258(74d), 1267(74d), 1280(74d), 1309(0), 1323(51d), 1347(51d), 1355(51d), 1433(166), 1444(166), 1455(166), 1465(0), 1481(0), 2344(0), 2456(0), 2624(0), 2657(0), 2660(0), 2701(0), 2855(190), 2875(80), 2890(80), 2902(120), 2915(190), 2928(190), 2943(190), 2960(80), 2973(12). The following data, from P. A. Bazhulin, *et al.*, *Ibid.* 1946, No. 1, 7, are adduced for comparison: cyclopentane (III), 257(0), 291(0), 628(0b), 780(0), 889(160b), 961(0), 1004(0), 1031(1), 1151(0), 1168(3), 1181(3), 1196(3), 1227(3), 1249(3), 1268(3), 1283(3), 1296(3), 1311(1), 1449(34b), 1485(5), 2827(0), 2860(0), 2870(170), 2900(30), 2931(30), 2957(210), 2949(210), 2969(130b); cyclohexane (IV), 384(7), 427(12), 802(250), 1029(92), 1158(16), 1267(74), 1348(13), 1430(3), 1445(73), 1466(2), 2344(0), 2456(2), 2626(2.5), 2665(12), 2696(1), 2852(400), 2866(100), 2895(122), 2924(380), 2941(340). (2) In II, the equivalence of all the 6 CH_2 groups of IV is perturbed as a result of the presence of the quaternary C atom linking the cyclohexane and cyclopentane rings; in contrast to free IV, which exists only in the chair form, there are 4 possible forms of II, 2 with the IV ring in the chair form, 2 in the bed form. As a result of the quaternary C atom taking part simultaneously in the vibrations of both the 5-member and the 6-member ring, the doublets 802, 831, and 889 cm.$^{-1}$, corresponding, resp., to the fundamental pulsating vibration frequencies of IV chair, IV bed, and III, are split into their component lines, 783 and 822, 796 and 846, 878 and 900 cm.$^{-1}$. The time required for the transition from the II isomer with the cyclohexane ring in chair form to that with the ring in bed form, over the potential barrier sepg. the two isomers, is sufficient for the two spectra to appear independently; this effect is termed "slowed vibration." The splitting of doublets of both III and IV into component lines is the result of the linking of the two rings through the common C atom. The higher frequency of the bed form of IV indicates that this form is the more strained one; this accounts for its absence in free IV; it does appear, however, in II, owing to the "slowed vibration" effect. (3) In I, the 890 frequency of III remains unsplit, and the remaining frequencies of III are substantially unchanged, with only some increase of diffuseness; the pulsating vibrations of the two identical rings are always in phase and sym. and the quaternary C atom remains immobile. The two possible mirror isomers corresponding to two positions of one of the two III rings are not indicated in the spectrum, possibly because of the low height of the energy barrier, or else the identity of their frequencies.

N. Thon

2

BATUYEV, M. I.

USSR/Chemistry - Hydrogenation
Chemistry - Hydrocarbons

Sep/Oct 1947

"Catalytic Hydrogenation of Cyclopentanic Hydrocarbons When the Cycle Is Interrupted, VIII," B. A. Kazanskiy, Z. A. Rumyantseva, M. I. Batuyev, Inst Org Chem, Acad Sci USSR, 10 pp

"Izv Akad Nauk SSSR, Otd Khim Nauk" No 5

Discusses hydrogenation of trans 1, 2- and trans 1,3-dimethylcyclopentane in presence of platinized carbon.

IA 53T6

PROCESSES AND PROPERTIES INDEX

4

Combination dispersion of light in fatty acids and the hydrogen bond. M. I. Batuev. *Bull. acad. sci. U.R.S.S. Sér. phys.* 11, 330-9(1947); cf. *C.A.* 41, 1936i, 2003b.—Frequencies corresponding to the O—H bond were observed in the vapor state of acetic and valeric acids. In the liquid state these frequencies were shifted, owing to H bonds. B. assumes that propylic and higher acids have in the fluid state a ring-type assocn. structure, whereas formic and acetic acids show in addn. a chain-type assocn. This can be shown in the behavior of C═O frequencies of fatty acids when dioxane is added to them. The width of the wings of the Rayleigh line decreases in fatty acids with increasing mol. wt. owing to the fact that in a chain structure the mol. can rotate around the axis of the H bond. The wings of the Rayleigh line can be considered as curves of intensity distribution corresponding to fluctuations in the energy between the bonds O—H and O...H.

S. Pakswer

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

BATUYEV, M. I.

PA 28T78

USSR/Physics Jul/Aug 1947
Spectroscopy
Light - Dispersion

"Composite Dispersion of Light in Aliphatic Acids and Hydrogen Bonds," M. I. Batuyev, 4 pp

"Iz Ak Nauk, Ser Fiz" Vol XI, No 4

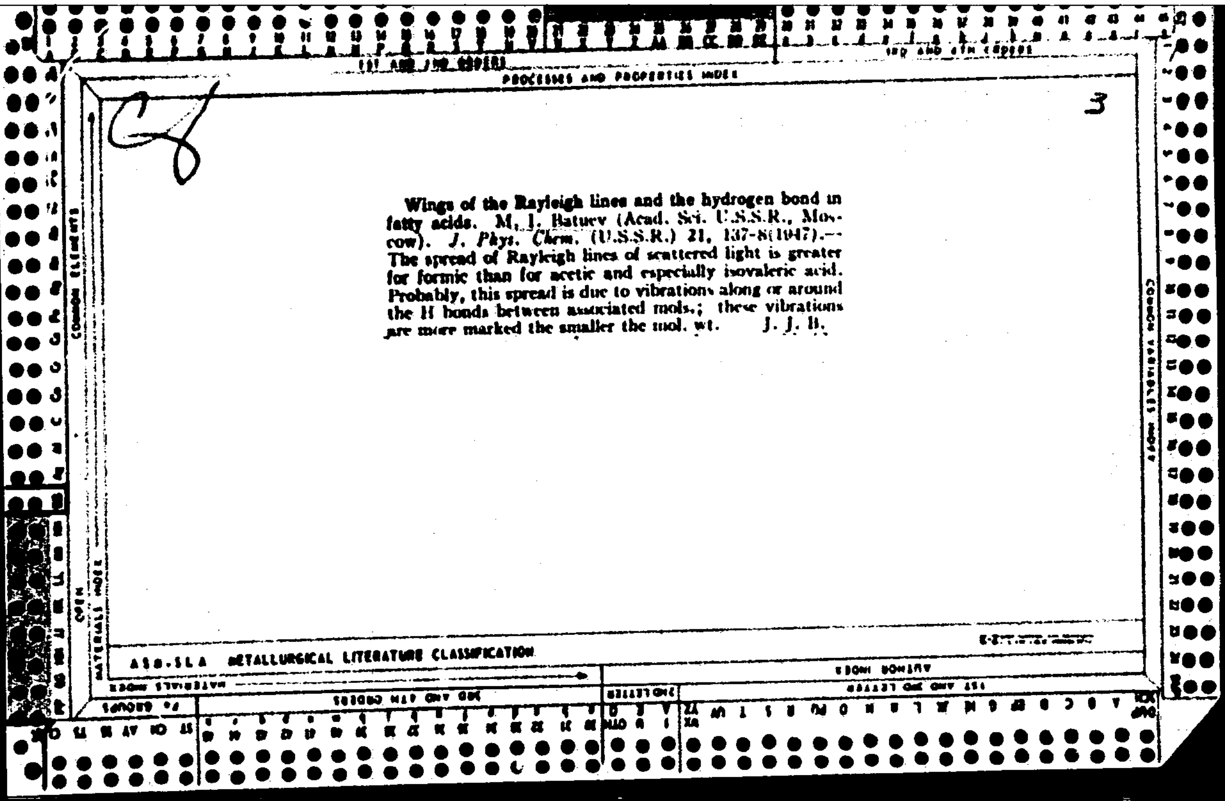
The author discusses the composite dispersion in the hydroxyl group of aliphatic acids, the composite spectrum of the carbonyl group of aliphatic acids. Rayleigh's lines, the hydrogen bond in aliphatic acids, and the fluctuation theory of the optical manifestation of the hydrogen bond. Article has a long list of comments on Batuyev's conclusions by various scientists. Submitted at the Institute of

28T78

USSR/Physics (Contd) Jul/Aug 1947

Organic Chemistry, Academy of Sciences of the USSR.

28T78



1ST AND 2ND ORDERS
3RD AND 4TH ORDERS
PROCESSES AND PROPERTIES INDEX
COMMON ELEMENTS
MATERIALS INDEX
COMMON VARIABLES INDEX
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION
SUBJECT INDEX
1ST AND 2ND LETTERS
3RD AND 4TH LETTERS

C8

3

Wings of the Rayleigh lines and the hydrogen bond in fatty acids. M. I. Batuev (Acad. Sci. U.S.S.R., Moscow). *J. Phys. Chem.* (U.S.S.R.) 21, 137-8(1947).—The spread of Rayleigh lines of scattered light is greater for formic than for acetic and especially isovaleric acid. Probably, this spread is due to vibrations along or around the H bonds between associated mols.; these vibrations are more marked the smaller the mol. wt. J. J. B.

BATUYEV, M. I.

"Hydroisomerization of Octene anto 2, 2-Dimethyl Hexane," Dok AN SSSR, 56, No 3, 1947, by A. D. Petrov, M. A. Chel'tsvoa, and M. I. Batuyev.

BATUYEV, M. I.

PA 19/49T11

USSR/Chemistry - Fatty Acids Sep/Oct 48
Chemistry - Spectra

"Studies of the Twofold Association of Aliphatic Acids by Means of the Method of Combined Dispersion of Light," M. I. Batuyev, Inst Org Chem, Acad Sci USSR, 4½ pp

"Iz Ak Nauk SSSR, Ser Fiz" Vol XII, No 5

Isolates frequency of dimeric ring as dispersion doublet line in formic (2,942, 2,956 cm^{-1}) and acetic (2,990, 3,028 cm^{-1}) acids by optical method. Frequencies of chain complexes of these acids in combination spectra is wide band (2,700 - 3,500 cm^{-1}) and those of OH monomeric molecules

[redacted]

19/49T11

USSR/Chemistry - Fatty Acids (Contd) Sep/Oct 48

in formic acid (1,8) is 3,863 cm^{-1} and in acetic 3,578 cm^{-1}. Fatty acids fall into two classes: (a) formic and acetic acids, which form chain polymeric complexes and ring dimeric complexes, and (b) other acids, beginning with propionic, which form dimeric ring complexes only. In dimeric ring the O-H frequency is shifted but not broken up as in the case of the polymer. This shows that the breaking up of O-H lines due to hydrogen bond is secondary effect of fluctuation - basic effect is frequency shift in long-wave direction.

[redacted]

19/49T11